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**Drinking Water Advisory: Consumer  
Acceptability Advice and Health Effects  
Analysis on Methyl Tertiary-Butyl Ether  
(MtBE)**

**DEFENDANT'S  
EXHIBIT**  
D-7052

MOHR-CONY MDL 1358 0007100

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carcinogenic activity is ambiguous for drinking water exposure to formaldehyde. A study by Soffritti et al. (1989) reported a dose-related increase in the incidence of leukemia and intestinal tumors in Sprague-Dawley rats. However, the experimental data presented in this publication was limited. Another drinking water study on formaldehyde by Til and coworkers (1989), using Wistar rats, found no evidence of carcinogenicity.

The carcinogenicity data support a conclusion that MtBE poses a potential for carcinogenicity to humans at high doses. The data do not support confident, quantitative estimation of risk at low exposure due to the limitations described above.

**Noncancer toxicity.** The collective evaluation of the reproductive and developmental studies of MtBE in animals indicate that inhalation exposure can result in maternal toxicity and adverse effects on the developing fetus (Bushy Run Research Center, 1991, 1989a, 1989b; Conaway et al., 1985). The fetal toxicity in the mouse developmental studies indicate that it may be more sensitive to inhalation of MtBE vapors than the rat or rabbit during gestation. However, it is possible to conclude that, at low concentrations, MtBE does not cause a developmental or reproductive hazard by inhalation in three different animal species. This also suggests that humans may not be at risk when exposed to very low concentrations of MtBE.

Effects on the kidney were observed in rats after oral and inhalation exposure to MtBE. The most pertinent noncancer toxicity data come from a 90-day oral exposure study in rats. The authors reported minimal effects on the kidneys at doses of 300 mg/kg/day and above (Robinson et al., 1990). In these animals, the MtBE was given once a day, as a bolus dose in corn oil. A single oral dose of MtBE in corn oil would not be considered representative of an intermittent exposure to MtBE that one would normally obtain from drinking water containing MtBE. In a longer term inhalation study, histopathological abnormalities were apparent (Chun et al., 1992). Uncertainties exist in quantifying risk from the oral data in the short-term study because of the bolus gavage dosing regime and the less-than-lifetime duration of the study. The uncertainty in extrapolating between routes affects the interpretation of the inhalation data.

The studies support a conclusion that MtBE can pose a hazard of noncancer effects to humans at high doses. The data do not support confident quantitative estimation of risk at low exposure.

**Taste and Odor.** Studies were conducted on the concentrations of MtBE in drinking water at which individuals respond to the odor or taste of the chemical. Human responses vary widely in this respect. Some who are sensitive can detect